PCN46

COST SAVINGS RELATED TO SUPERIOR ADVERSE EVENT PROFILE OF BEVACIZUMAB PLUS CHEMOTHERAPY VERSUS CETUXIMAB PLUS CISPLATIN/VINORELBINE IN THE FIRST-LINE THERAPY OF ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC) IN GERMANY: A SENSITIVITY ANALYSIS ON THE ECOG STATUS

Heigener D[1], Bischoff HG[2], Banz K[3], Walzer S[4]
[1]Krankenhaus Grosshansdorf, Grosshansdorf, Germany, [2]Thoraxklinik Heidelberg, Heidelberg, Germany, [3]Outcomes International, Basel, Switzerland, [4]F. Hoffmann-La Roche Pharmaceuticals AG, Basel, Switzerland

OBJECTIVES: Novel combination therapies can improve survival compared with chemotherapy alone in patients with advanced NSCLC. However, acceptable tolerability is also important as it affects clinical outcomes, quality of life, and overall cancer treatment costs. This analysis assesses direct medical costs for the management of grade 3/4 adverse events (AEs) associated with two non-chemotherapies for first-line treatment of NSCLC consisting of either Bevacizumab (BEV) plus chemotherapy (CT) or Cetuximab (C) plus cisplatin/vinorelbine (CV). **METHODS:** Information on AE profiles were retrieved from the AVAiL study (7.5 mg/kg, Reck et al. 2009) and the E4599 study (15 mg/kg, Sandler et al. 2006) for BEV+CT and from the FLEX study (Pirker et al. 2009) for C+CV. To account for the inclusion of ECOG 2 patients in FLEX (which were excluded in AVAiL and E4599), incidences of febrile neutropenia, non-febrile neutropenia and leukopenia in FLEX were decreased by up to 30% based on expert suggestion to improve study comparability. Information on standard treatment patterns of the different AEs was collected through a systematic literature search and complemented by data provided by two German oncologists. These resource use items were assigned unit costs (charges) applicable to Germany. **RESULTS:** When unadjusted incidences of all AEs reported in AVAiL, E4599, and FLEX are used, resulting overall per-patient treatment costs related to the two BEV+CT studies are substantially lower those related to C+CV (€1092 and €464 versus €2287). Sensitivity analyses provide evidence that overall AE costs remain lower for AVAiL and E4599 even when incidences for selected AEs affected by cetuximab therapy are reduced by 10%, 20%, and 30% (€2151, €2015, and €1879, respectively). **CONCLUSIONS:** BEV+CT shows better tolerability linked with lower AE treatment costs when compared to C+CV. These favorable outcomes for BEV+CT were maintained when AE frequencies for C+CV were adjusted for ECOG status.

PCN47

COSTS OF TREATING SEVERE ADVERSE EVENTS OBSERVED WITH A REGIMEN OF BEVACIZUMAB PLUS CHEMOTHERAPY VERSUS CETUXIMAB PLUS CISPLATIN/VINORELBINE IN THE FIRST-LINE THERAPY OF ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC) IN GERMANY

Bischoff HG[1], Heigener D[2], Banz K[3], Walzer S[4]
[1]Thoraxklinik Heidelberg, Heidelberg, Germany, [2]Krankenhaus Grosshansdorf, Grosshansdorf, Germany, [3]Outcomes International, Basel, Switzerland, [4]F. Hoffmann-La Roche Pharmaceuticals AG, Basel, Switzerland

OBJECTIVES: Novel combination therapies can improve survival as compared to chemotherapy alone in patients with advanced NSCLC. Essential is also that these new therapies have acceptable tolerability profiles. Furthermore, toxicities can result in potentially high additional treatment costs. This analysis therefore aims to explore overall costs of adverse events (AEs) associated with two new biologics in first-line NSCLC consisting of either Bevacizumab (BEV) combined with chemotherapy (CT) or Cetuximab (C) combined with cisplatin + vinorelbine (CV). **METHODS:** All published AEs and their incidences as reported in the AVAiL study (7.5 mg/kg, Reck et al. 2009) and the E4599 study (15 mg/kg, Sandler et al. 2006) were considered for BEV+CT, whereas AE data for C+CV was taken from the FLEX study (Pirker et al. 2009). A systematic literature search was performed to collect published information on standard treatment patterns and costs of AEs. To complement and further substantiate these results, two oncologists in Germany were interviewed to obtain additional information on medical resource utilization for the AEs considered. These resource use items were then assigned unit costs (charges) reflective of the German health care system. A spreadsheet model was used to calculate total average per-patient AE costs for the two compared therapy regimens. **RESULTS:** Our analysis shows substantially lower overall per-patient treatment costs for the grade 3/4 AE profiles specified in both BEV NSCLC trials (AVAiL and E4599) than for all severe AEs observed in the FLEX trial (€1092 and €464 versus €2287). The differences favouring BEV+CT are mainly due to lower incidences of febrile neutropenia, leukopenia, neutropenia, sepsis, and anaemia than observed for a C+CV regimen. **CONCLUSIONS:** BEV+CT shows better tolerability and lower AE treatment costs as compared to C+CV. Coupled with its favorable effectiveness, BEV+CT should be considered as therapy of choice for patients with advanced NSCLC.

PCN48

COST OF CARE FOR COLORECTAL CANCER IN IRELAND: A HEALTH CARE PAYER PERSPECTIVE

Tilson L[1], Sharp L[2], Walsh C[3], O'Ceilleachair A[2], Usher C[1], Comber H[2], Barry M[1]
[1]National Centre for Pharmacoeconomics, Dublin, Ireland, [2]National Cancer Registry of Ireland, Cork, Ireland, [3]Trinity College Dublin, Dublin, Ireland

OBJECTIVES: To estimate the average lifetime cost of care for patients with colorectal cancer in Ireland, from the perspective of the health care payer (HSE). **METHODS:** A decision tree model was developed in Microsoft Excel. Treatment pathways were constructed for each stage of colon cancer (CC) and rectal cancer (RC) from guidelines and expert clinical opinion. Healthcare resource use associated with diagnosis, treatment and follow-up were obtained from the National Cancer Registry (n = 1,498; 36% RC and 64% CC; 2004–2005), and two local hospital databases (n = 155 and 142; 2007). Unit costs for hospitalisation, procedures, laboratory tests and radiotherapy were derived from DRG costs, hospital finance departments, clinical opinion and literature review. Chemotherapy costs were estimated from local hospital protocols, pharmacy department and clinical opinion. Future costs of follow-up were discounted at 4% over 5 years. Uncertainty was explored using one-way sensitivity analysis. **RESULTS:** Average lifetime costs per patient were higher for RC (Stage I €24,089; Stage II €40,950; Stage III €49,987; Stage IV €45,237) than CC (Stage I €23,462; Stage II €35,059; Stage III €48,186; Stage IV €31,774). Cost estimates were most sensitive to recurrence rates and prescribing of the biologic agents bevacizumab and cetuximab. **CONCLUSIONS:** This study demonstrates how costs of managing cancer can be estimated using existing data from national and local databases. The findings illustrate the major impact that the new biologic agents have on the cost of cancer care. They also highlight the potential to reduce health care resource utilisation by implementing strategies to detect colorectal cancer at earlier stages.

PCN49

COSTS AND QUALITY OF LIFE OF MULTIPLE MYELOMA (MM) IN ITALY: THE CO.MI.M. STUDY

Petrucci MT[1], Calabrese E[1], Levi A[1], Federico V[1], Ceccolini M[2], Rizzi R[3], Gozzetti A[4], Cavallo F[5], Cavallo M[6], Gerzeli S[6], Boccadoro M[5], Lauria F[4], Liso V[3], Cavo M[2], Foà R[1]
[1]University La Sapienza, Rome, Italy, [2]University of Bologna, Bologna, Italy, [3]University of Bari, Bari, Italy, [4]University of Siena, Siena, Italy, [5]A.O.U. San Giovanni Battista, Torino, Italy, [6]Bocconi University, Milano, Italy

OBJECTIVES: A cross-sectional retrospective, prevalence-based study was designed to measure costs and QoL associated with MM management at different disease phases in a societal perspective. **METHODS:** A snapshot questionnaire was administered to 236 subjects in 5 Italian hematological centers. Health-related QoL was measured using the EORTC QLQ-C30 and its MM specific module MY24, administered to 199 patients at enrolment). Four disease-phases were considered in a distribution that reflects real clinical practice: asymptomatic, "watch-and-wait" (16%); symptomatic, receiving an autotransplant (12%); symptomatic, receiving drugs (45%); and plateau/remission (including best supportive care) (27%). Costs were identified over 1 year of disease management with regard to: drugs, visits, laboratory tests, hospital admissions, support devices, home assistance, travel, and reduced productivity of patients and caregivers. Costs for working days lost were derived according to the human capital method. **RESULTS:** The average costs per subject per year were €20,695 while direct health care costs were €16,717 and direct non-health care costs were €447; indirect costs (productivity loss) were €3,531 per subject per year. The average direct health care costs per subject per year were: €660; €53,020; €18,892; €6,319 for asymptomatic, autotransplanted, receiving drugs and plateau/remission respectively. The groups with the highest resource utilization were the autotransplanted and those receiving drugs. Regarding QoL, our sample of 199 patients recorded a 60.93 Global Health Score in QLQ-C30 (asymptomatic: 71.05; autotransplanted: 57.41; receiving drugs: 49.25; Plateau/remission: 72.02). **CONCLUSIONS:** The main resource utilization comes from direct medical costs. MM treatment strategy has changed dramatically in the past years. In particular, transplant and pharmacological treatments represent the most relevant costs, although counterbalanced by the highly increased clinical outcomes reported in literature (Kumar,Blood,2007). The QoL analysis showed the impact of maintaining patients in the plateau/remission phase, which ensures that their QoL and particularly the global health score is comparable with asymptomatic.

PCN50

HOSPITALISATIONS FOR HEAD AND NECK CANCERS IN FRANCE

Lacau St Guily J[1], Borget I[2], Vainchtock A[3], Rémy V[4]
[1]Hôpital Tenon, Paris, France, [2]Institut Gustave Roussy, Villejuif, France, [3]HEVA, Lyon, France, [4]Sanofi Pasteur MSD, Lyon, France

OBJECTIVES: With 16,005 new cases and 5,406 related deaths in 2005, France is particularly concerned by Head and Neck (H&N) cancers. In addition to tobacco and alcohol, Human Papillomavirus (HPV) has been reported as a risk factor for H&N cancers. The literature on the burden of these cancers in Europe is scarce. This study was performed to assess the medical and economical burden of hospitalisations for H&N cancers in France. **METHODS:** The French national hospital database (PMSI), in which admissions to public and private hospitals are recorded, was retrospectively analysed to assess the annual number of patients hospitalised for H&N cancers and associated hospital costs from the health care payer perspective. ICD-10 codes (16 codes classified as oral cavity, pharynx, salivary glands, larynx) were used to extract admissions for these cancers. Hospital stays, chemotherapy and radiotherapy sessions were extracted to assess patients' management. Costs of admissions were obtained from French official tariffs. **RESULTS:** In 2007, there were 35,069 patients hospitalised for H&N cancers, of whom 81% were men, corresponding to 60,200 hospital stays and 242,935 sessions of chemo- or radio-therapy. Pharynx cancer was the most frequent (49% of patients), followed by oral cavity cancer (37% of patients). The peak of frequency was observed in the 55–59 years age group. Patients were mainly treated in medicine (47%) and surgery (23%) units. Mean annual cost per patient ranged from €3,285 to €8,924, leading to a total hospital cost of €275 millions in 2007. **CONCLUSIONS:** The hospital burden of H&N cancers is considerable. Furthermore, these costs are underestimated since radiotherapy sessions performed in the private sector as well as expensive drugs were not available from the PMSI. The

proportion of HPV-related cancers remains to be established site by site and further research is needed to assess outpatient and indirect costs linked to these cancers.

PCN51

THE COSTS OF BREAST CANCER PRIOR TO AND FOLLOWING DIAGNOSIS

Broeckx S[1], Den Hond E[1], Torfs R[1], D'Hooghe T[2], Simoens S[3]
[1]Flemish Institute for Technological Research, Mol, Belgium, [2]University Hospitals Leuven, Leuven, Belgium, [3]Katholieke Universiteit Leuven, Leuven, Belgium

OBJECTIVES: This incidence-based cost-of-illness analysis aims to quantify the costs associated with female breast cancer in Flanders for the year prior to diagnosis and for each of the five years following diagnosis. **METHODS:** A bottom-up analysis from the societal perspective included direct health care costs and indirect costs of productivity loss due to morbidity and premature mortality. A retrospective case-control study design compared total costs of breast cancer patients with costs of an equivalent standardised population with a view to calculating the additional costs that can be attributed to breast cancer. The sample was made up of women who had undergone surgical treatment for breast cancer and who were affiliated with the Christian Health Insurance Funds. Resource utilisation data were derived from national publications, the Christian Health Insurance Funds and statistical institutes. **RESULTS:** The sample consisted of 20,439 breast cancer patients. Total average costs of breast cancer amounted to €107,456 per patient over 6 years. Total costs consisted of productivity loss costs (89% of costs) and health care costs (11% of costs). Health care costs did not vary with age at diagnosis. Health care costs of breast cancer patients converged with those of the general population at five years following diagnosis. Patients with advanced breast cancer stadia had higher health care costs. **CONCLUSIONS:** To reduce costs associated with breast cancer, attention needs to be focused on decreasing the productivity loss from breast cancer. The implementation of new techniques to prevent, diagnose, and treat breast cancer not only impact direct health care costs, but may also influence indirect costs of productivity loss.

PCN52

COSTS OF ADVANCED GASTRIC CANCER (AGC) IN BRAZIL FROM THE PUBLIC PAYER PERSPECTIVE

Clark O[1], Santos EA[2], Saggia MG[2]
[1]Evidencias Medicas, Campinas, Sao Paulo, Brazil, [2]Roche Brazil, Sao Paulo, SP, Brazil

OBJECTIVES: In Brazil, 140 million citizens (~80% of the population) depend on the public health care system. Advanced gastric cancer (AGC) is the second most frequent cause of death in Brazil: 10,645 per year. This disease appears among the most costly cancers to treat. Objective was to identify the medical resource usage (MRU) to treat AGC and estimate the associated costs in the public health care sector in Brazil. **METHODS:** A questionnaire was developed to identify the medical resource usage (MRU) of managing AGC in the public health care system. The questionnaire was applied to 20 oncologists and 20 nurses in a structured interview. MRU data were extracted according to the following stages: 1) diagnosis and staging; 2) 1st line treatment, 3) 2nd line treatment; 4) best supportive care (BSC); and 5) terminal care. Then, modified Delphi panels were conducted in the 5 largest cities of Brazil to reach a consensus on the base-case value and on the possible ranges of each resource used. Financial values were translated into USD based on the exchange rate of R$2.40 = US$1.0. **RESULTS:** The mostly used diagnostic procedures were upper digestive endoscopy, abdominal computed axial tomography (CAT) and thoracic radiography. For 1st line treatment, 5FU-based chemo was the first choice of 50% of the oncologists interviewed, either given in combination with cisplatin (22%), etoposide (17%) or cisplatin plus doxorubicin (11%). Most commonly used resources in BSC/terminal care were blood analysis and anti-algic radiation. The mean cost per patient were: diagnostic and staging: R$451 (US$188); 1st line treatment: R$4565 (US$1902); 2nd line treatment: R$2740 (US$1142); BSC: R$883 (US$368); and terminal care: R$416 (US$173). The total mean cost per patient were therefore R$9056 (US$3773) of which chemotherapy drugs represented 37%. **CONCLUSIONS:** Findings suggest that the total mean cost of treating AGC per patient in the public sector in Brazil is R$9056 (US$3773).

PCN53

COST PER DISEASE STAGE OF ADVANCED GASTRIC CANCER IN BRAZIL FROM THE PRIVATE PAYER PERSPECTIVE

Clark O[1], Santos EA[2], Saggia MG[2]
[1]Evidencias Medicas, Campinas, Sao Paulo, Brazil, [2]Roche Brazil, Sao Paulo, SP, Brazil

OBJECTIVES: Gastric cancer is the second most frequent cause of cancer death worldwide. Approximately 22,000 new cases are expected in Brazil annually. Our aim was to estimate the cost per disease stage of advanced gastric cancer in Brazil in the private health care sector. **METHODS:** A questionnaire was developed to identify the medical resource usage (MRU) of managing gastric cancer in the private health care system. The questionnaire was applied in a structured interview to 40 experts (20 oncologists and 20 nurses) who represented different Brazilian regions. MRU data were extracted according to the following stages: 1) diagnosis and staging; 2) 1st line treatment; 3) 2nd line treatment; 4) best supportive care (BSC), and v) terminal care. Later, a modified Delphi panel was conducted to reach a consensus on the base-case value and on possible ranges for each resource identified. A micro-costing technique was then applied to calculate costs. Financial values were translated into USD based on the exchange rate of R$2.40 = US$1.0. **RESULTS:** The most used diagnostic procedures were upper digestive endoscopy, abdominal computed axial tomography (CAT) and thoracic radiography. 5FU/capecitabine-based chemo was the oncologists' first choice for both 1st and 2nd line treatment (48% and 42%, respectively). Most commonly used resources in the BSC/ terminal care stages were medical visits and blood analysis. The mean cost per patient were: diagnostic and staging: R$1,283 (US$ 535); 1st line treatment: R$ 0.502 (US$12,710); 2nd line treatment: R$ 6,406 (US$2,670); BSC; R$6,833 (US$2,847); and terminal care: R$743 (US$310). The total mean cost per patient were R$45,768 (US$19,070), of which chemotherapy drugs represented 66%. **CONCLUSIONS:** The findings indicate that the most expensive stage in treating advanced gastric cancer in the private sector in Brazil is the 1st line treatment. Further studies are recommended to explore the results.

PCN54

A DESCRIPTIVE ANALYSIS OF SUBJECTS WITH METASTATIC GASTRIC CANCER (MGC)

Oglesby AK[1], Lage MJ[2], Wang PF[1]
[1]Amgen, Inc., Thousand Oaks, CA, USA, [2]HealthMetrics Outcomes Research, LLC, Groton, CT, USA

OBJECTIVES: To examine the patient characteristics, comorbidities, and medication usage of subjects diagnosed with mGC. **METHODS:** Subjects in the Marketscan Commercial Claims and Encounter Database (July 1, 2003–June 30, 2008) were included for analysis if they received a diagnosis of mestastasis based on ICD-9 codes on or after the first occurrence of GC, had no claims for other secondary metastases in the 6 months prior to the initial mGC claim, and had continuous insurance coverage from 6 months prior through at least one month post the initial diagnoses of mGC. Health care costs and resource utilization (HRU) are described from the date of initial mGC diagnosis through end of data collection due to patient drop out or end of the data collection period (e.g. post-period). Study data are shown as summary (or descriptive) statistics. **RESULTS:** A total of 2058 subjects with mGC were included in the analysis. At mGC diagnosis, the median age was 58 years (25th /75th percentile: 31 and 62 years respectively) and 60% were male. The mean length of follow-up after mGC was 2.6 years (SD: 1.3 years). The most common comorbidities at the time of mGC diagnosis were cardiovascular disease (48%), hypertension (29%), and diabetes (16%). Sixty-five percent of mGC subjects received outpatient chemotherapy in the post-period. Mean monthly medical costs were $5080 in the post-period, which consisted of 46% inpatient costs, 40% outpatient costs, and 14% outpatient chemotherapy costs. **CONCLUSIONS:** One-third of mGC patients were not treated with outpatient oncolytics. Outpatient chemotherapy costs constituted a small portion of the total cost of mGC.

PCN55

THE ECONOMIC EVALUATION OF SUNITINIB AND SORAFENIB IN MRCC PATIENTS IN THE CZECH REPUBLIC

Demlova R[1], Ondrackova B[2], Kominek J[1]
[1]Masaryk Memorial Cancer Institute, Brno, Czech Republic, [2]Masaryk University, Brno, Czech Republic

OBJECTIVES: Sunitinib and sorafenib, the multikinase inhibitors, launched into the Czech market in the middle of 2006 as a second-line treatment of metastatic renal cell carcinoma (mRCC) and were not yet economically evaluated in real clinical practice. The aim was to assess direct medical costs in mRCC patients treated in comprehensive cancer centre from a health care payer perspective. **METHODS:** Between May 2006 and May 2009 31 mRCC patients were treated with sorafenib and/or sunitinib after previous cytokine therapy failure (mean age 52 years; 23 men). The progression of disease and costs (including concomitant medication, examination, check-ups, hospitalization) were assessed each two-months of therapy. Cost of cycle to progression, cost of cycle after progression and the structure of costs were determined. (1€ = 26.8CZK) **RESULTS:** Seventeen **patients started therapy with sunitinib, 8 of which** were converted to sorafenib after progression. 3 patients finished sunitinib therapy due to adverse events (AE). Fourteen patients started with sorafenib therapy, 2 of which were converted to sunitinib due to AE, other 2 patients were converted to sunitinib after progression. The main AE were skin toxicity, oedema, arthralgia and other pain. The dose was reduced in 10 patients due to AE. Median number of two-month progression free cycles was 4; mean cost of one cycle was €7546. Cost of medication formed 95.4% (sunitinib+sorafenib 94.3%), investigations and check-ups 4.42% and hospitalizations 0.18% of total costs. Median two-month cycles after progression was 2 with mean cost €4840. Sunitinib and sorafenib formed 90.5%, investigations and check-ups 6.2%; and hospitalizations 0.8% of total costs; 9 patients died. **CONCLUSIONS:** The analysis of direct medical costs in patients with mRCC proved high costs concerned with multikinase inhibitors´ therapy. Since data on the economic burden of oncology treatment in the Czech Republic are limited it is essential to start with cost-of-illness studies to enable pharmacoeconomic analyses for drug reimbursement.

PCN56

COST OF RENAL CELL CARCINOMA TREATMENT IN PATIENTS TREATED WITH INTERFERON-ALPHA

Purmonen T[1], Vuorinen R[2], Kataja V[3], Pyrhönen S[4], Kellokumpu-Lehtinen P[5]
[1]University of Kuopio, Kuopio, Finland, [2]University of Turku, Turku, Finland, [3]Kuopio University Hospital and Vaasa Central Hospital, Kuopio, Finland, [4]Turku University Hospital and University of Turku, Turku, Finland, [5]Tampere University Hospital and University of Tampere, Tampere, Finland

OBJECTIVES: Renal cell carcinoma (RCC) accounts for three peercent deaths in Finland. However, information on treatment modalities and the cost of treatment in different hospitals is scarce. The aim of the study was to clarify the current situation